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THE USE OF THE *PLANISPHERE.*

IN this *Planiſphere* the Center repreſents the *North Pole* of the World, about which are theſe four *Concentrick Circles.*

1. The *Artick Circle* being a leſſer Circle diſtant from the Pole 23 deg. 30 min.

2. The *Tropick* of *Cancer* diſtant from the *North Pole* 66 degrees 30 minutes, and from the *Equator* 23 degrees 30 minutes.

3. The *Equator*, which is diſtant from the Pole 90 degrees, numbred 10, 20, 30, *&c.* to 360.

4. The *Tropick* of *Capricorn*, diſtant from the Equator Southward 23 degrees 30 minutes.

The *Ecliptick* makes an Angle of 23 degrees 30 minutes, with the Equator at the two oppoſite Points ♈ and ♎, and is divided into 12 Signs, marked ♈, ♉, ♊, *&c.*

Any Right Line ſuppoſed to be drawn from the Pole or Center of the *Planiſphere* is a Meridian, but that which is called the *Graduated Meridian* is numbred from the Equator both ways, with 10, 20, 30, *&c.*

By the help of this *Planiſphere*, the following uſeful *Problems* may be reſolved.

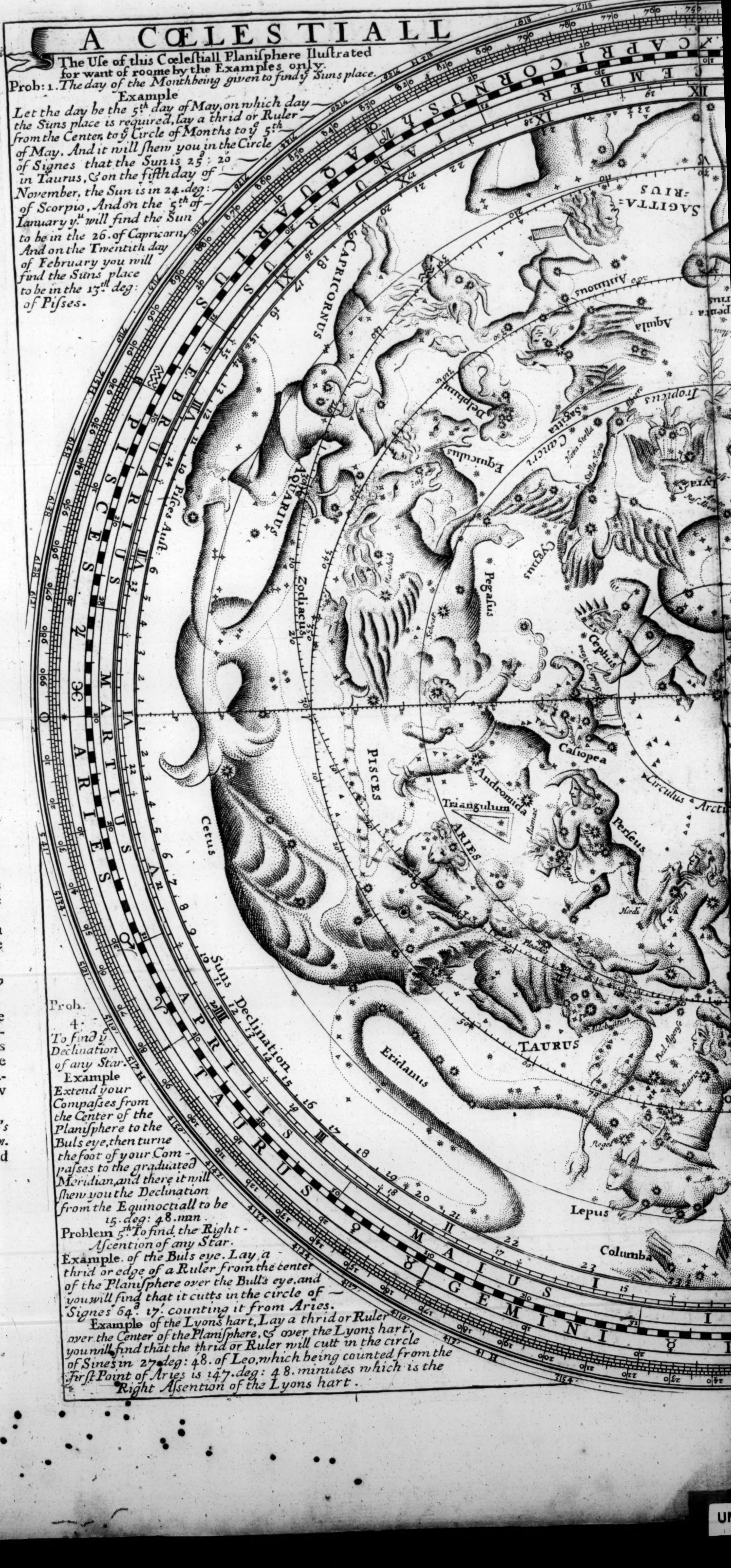
1. The Day of the Month being given to find the Sun's Place in the *Ecliptick.*
2. To find the Hour of the Night by any known Star, being upon the Meridian.
3. To know what Month and Day any Star will South at Midnight.
4. To find the *Declination* of any known Star.
5. To find the *Right Aſcenſion* of any known Star.
6. To find the Time of the Moon's Southing any Day of her Age.
7. To find the Time of the Sun's Riſing and Setting, any Day in the Year, in the Latitude of *London.*

For the Solution of thoſe Seven Problems, you have Directions at the Corners of the *Planiſphere.*

Prob. 8. *Having the Sun's Place to find his Declination.*

Extend your Compaſſes from the Center of the *Planiſphere*, to the Degree of the Ecliptick that the Sun is in; then keeping one Point in the Center, turn the other to the Graduated Meridian, and it will ſhew the Declination required.

Example. *I deſire to know the Sun's Declination when he is in* 0 *deg.* 0 *min. of* Taurus. Extend



A CŒLESTIALL

The Uſe of this Cœleſtiall Planiſphere Illuſtrated for want of roome by the Examples only.

Prob: 1. *The day of the Month being given to find y^e Suns place.*

Example

Let the day be the 5^th day of May, on which day the Suns place is required, lay a thrid or Ruler from the Center, to y^e Circle of Months to y^e 5^th of May. And it will ſhew you in the Circle of Signes that the Sun is 25^d: 20^m in Taurus, & on the fifth day of November, the Sun is in 24. deg: of Scorpio, And on the 5^th of January y^u will find the Sun to be in the 26. of Capricorn, And on the Twentith day of February you will find the Suns place to be in the 13^th deg: of Piſses.

Prob. 4. *To find y^e Declination of any Star.*

Example

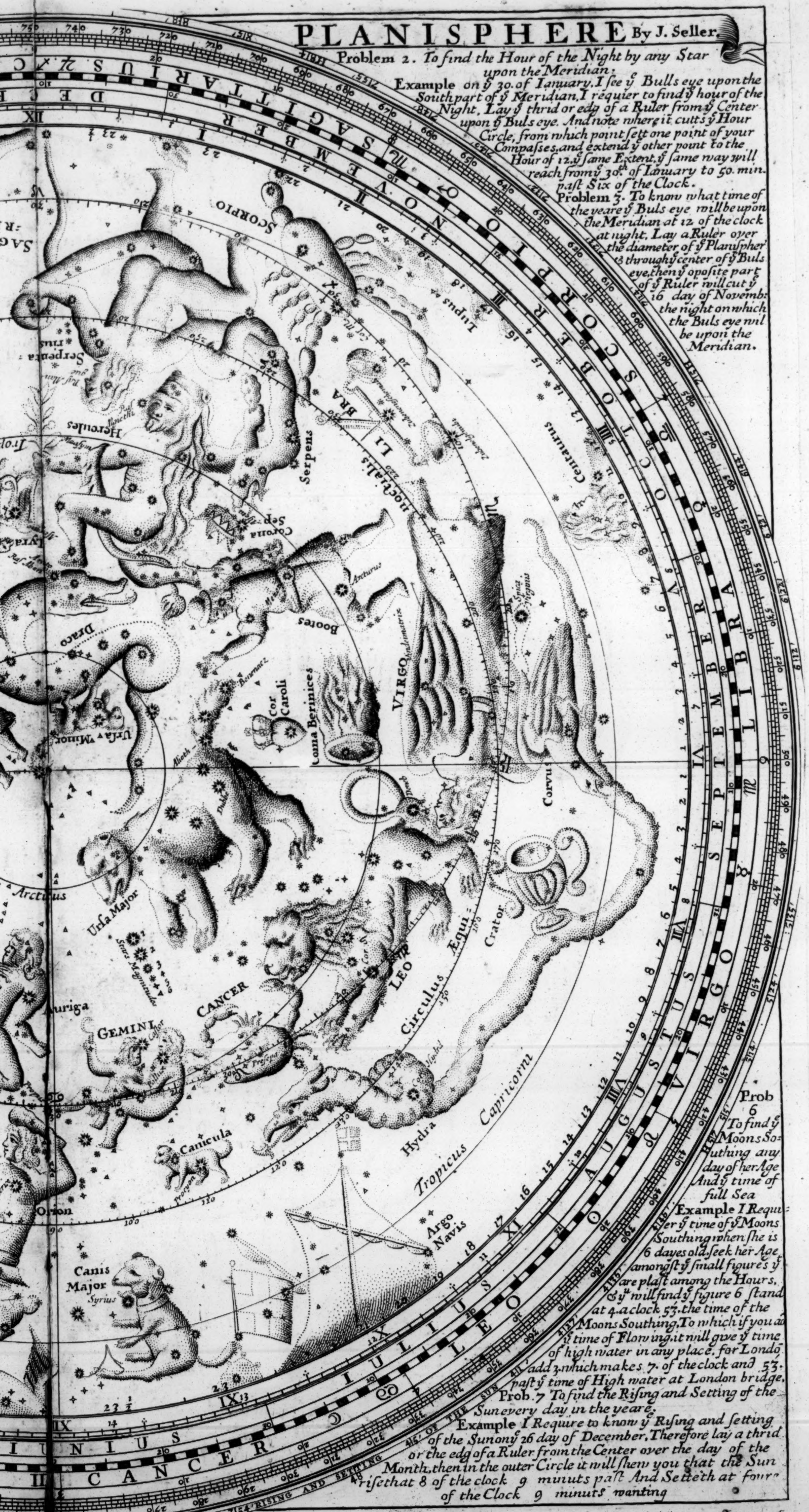
Extend your Compaſses from the Center of the Planiſphere to the Buls eye, then turne the foot of your Compaſses to the graduated Meridian, and there it will ſhew you the Declination from the Equinoctiall to be 15. deg: 48. mnn.

Problem 5^th. *To find the Right Aſcention of any Star.*

Example. *of the Buls eye. Lay a thrid or edge of a Ruler from the center of the Planiſphere over the Bull's eye, and you will find that it cutts in the circle of Signes 64^d. 17'. counting it from Aries.*

Example *of the Lyons hart, Lay a thrid or Ruler over the Center of the Planiſphere, & over the Lyons hart, you will find that the thrid or Ruler will cutt in the circle of Sines in 27 deg: 48. of Leo, which being counted from the first Point of Aries is 147. deg: 48. minutes which is the Right Aſsention of the Lyons hart.*

RADCLIFFE OBSERVATORY OXFORD.



PLANISPHERE By J. Seller.

Problem 2. *To find the Hour of the Night by any Star upon the Meridian.*

Example *on yͤ 30. of January. I ſee yͤ Bulls eye upon the South part of yͤ Meridian. I requier to find yͤ hour of the Night. Lay yͤ thrid or edg of a Ruler from yͤ Center upon yͤ Buls eye. And note where it cutts yͤ Hour Circle, from which point ſett one point of your Compaſses, and extend yͤ other point to the Hour of 12. yͤ ſame Extent. yͤ ſame way will reach from yͤ 30th of January to 50. min. paſt Six of the Clock.*

Problem 3. *To know what time of the yeare yͤ Buls eye will be upon the Meridian at 12 of the clock at night. Lay a Ruler over the diameter of yͤ Planiſpher & through yͤ center of yͤ Buls eye, then yͤ opoſite part of yͤ Ruler will cut yͤ 16 day of Novemb: the night on which the Buls eye wil be upon the Meridian.*

Prob 6 *To find yͤ Moons Southing any day of her Age And yͤ time of full Sea*

Example *I Require yͤ time of yͤ Moons Southing when ſhe is 6 dayes old. ſeek her Age amongſt yͤ ſmall figures yͭ are plaſt among the Hours, & yͧ will find yͤ figure 6 ſtand at 4. a clock 53. the time of the Moons Southing. To which if you ad yͤ time of Flowing it will give yͤ time of high water in any place. for Londō add 3. which makes 7. of the clock and 53. paſt yͤ time of High water at London bridge.*

Prob. 7 *To find the Riſing and Setting of the Sun every day in the yeare.*

Example *I Require to know yͤ Riſing and ſetting of the Sun on yͤ 26 day of December. Therefore lay a thrid or the edg of a Ruler from the Center over the day of the Month. then in the outer Circle it will ſhew you that the Sun riſeth at 8 of the clock 9 minuts paſt And Setteth at foure of the Clock 9 minuts wanting*

Extend the Compaſſes from the Center to 0 deg. 0 min. of ♉ on the Ecliptick Circle, then turning them about as before directed, the moveable Point falls on 11 deg. 30 min. which (becauſe it is numbred from the Equator towards the North Pole) is North Declination, which was required.

Prob. 9. *Having the Sun's Place given to find his Right Aſcenſion.*

Lay a Scale from the Center over that Point in the Ecliptick that the Sun is in, and obſerve where it cuts the Equator; the Degrees and Minutes ſo found, is the Right Aſcenſion of the Sun at that time.

Example. *The Sun's Right Aſcenſion when he is in 0 deg. 0 min. of ♉, is required.*

Lay your Scale from the Center of the *Planiſphere* over 0 deg. 0 min. of ♉ in the Ecliptick, and it will cut in the Equator 27 deg. 54 min. the Sun's Right Aſcenſion ſought.

Having thus found the Right Aſcenſion of the Sun, and alſo the Right Aſcenſion of any Star, by *Prob.* 5. you may find what time of the Day or Night the ſaid Star will be upon the Meridian (beſides the Method propoſed in *Prob.* 2.) Thus,

Subtract the Right Aſcenſion of the Sun from the Right Aſcenſion of the Star (borrowing 360 deg. if Subtraction cannot be made) the Remainder reduce into Time (allowing for every 15 degrees one hour, and for every degree 4 minutes) it gives the hour and minute Afternoon that the Star will be upon the Meridian; and if it amount to more than 12 hours, ſubtract 12 hours from it, the Remainder is the hour and minute that the Star comes to the Meridian next Morning.

Example. *It is required to know what time the* Lyon's Heart *will be upon the Meridian on the Day that the Sun's Place is found to be in 0 deg. 0 min. of ♑.*

The Right Aſcenſion of the *Lyons Heart*, is found (by *Prob.* 5.) to be 147 degrees 48 minutes, from which ſubtract the Right Aſcenſion of the Sun (which is found by *Prob.* 9. to be) 270 degrees; the remainder 237 deg. 48 min. reduced to Time gives 15 hours 51 minutes Afternoon, from which abating 12 hours, the Remainder 3 hours 51 minutes is the hour of the *Lyons Heart* coming to the Meridian in the Morning.

Note, If you put a ſmall Bead upon the String that is fixed at the Center of the *Planiſphere*, the String and Bead ſo fitted will ſupply the Uſe of Scale and Compaſſes, the String ſerving inſtead of a Scale, and the Bead ſlipping up and down upon the String at pleaſure, gives any Extent from the Center upon the Graduated Meridian.

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The Uſe of the Planiſphere, *upon the Plain of the* Ecliptick.

THESE two *Planiſpheres* upon the Plain of the *Ecliptick*, are one for the Northern *Hemiſphere*, the other for the *Southern*; but their Uſe is the ſame, their Centers are the Poles of the Ecliptick, and their Periphery is the Ecliptick Circle, and the Poles of the World are 23deg. 30m. from the Center or Pole of the Ecliptick. In the Northern *Hemiſphere* you have the *Pole-Artick*, or *North Pole*, and about it is Deſcribed the *Artick Circle*, the *Tropick* of *Cancer*, and one half of the *Equator*. In the Southern *Hemiſphere*, you have the *South Pole*, (and reſpecting it for a Center, you have) the *Antartick Circle*, the *Tropick of Capricorn*, and the other half of the *Equator*. The chief Uſe is,

1. To find the *Longitude* of any fixed *Star*.

Lay a Scale from the Center, over the *Star* whoſe *Longitude* is required, and the Sign and Degree cut by the Scale upon the *Ecliptick*, or outermoſt *Circle*, is the Place of the *Star* in *Longitude*.

Example. *I deſire the* Longitude *of* Capella, (*which is a bright* Star *in the Conſtellation called* Auriga.)

I lay a Scale as before directed, and I find it cuts the *Ecliptick* in 17deg. 30m. of *Gemini*; the Place of the *Star* required.

2. To find the *Latitude* of any *Star*.

Extend your Compaſſes from the Center of the *Planiſphere*, to the *Star*, then keeping one foot in the Center, turn the other to the Graduated Line of *Longitude*; which (in both *Hemiſpheres*) is one of the Lines drawn from the Center to the Periphery and numbred towards the Center, with 10, 20, 30, &c. and you have the *Latitude* of the *Star* required.

Example. *I deſire to know the* Latitude *of the Star* Capella, *or the* Goat, *before mentioned.*

Extend the Compaſſes from the Center to the *Star*, then turn it to the Graduated Line of *Longitude*, it falls upon 22deg. 50min the *Latitude* of the *Star* required.

Note, Always if the *Star* whoſe *Latitude* is ſought, be found in the Northern *Hemiſphere*, the *Latitude* is North; (as in the *Example* above) and and if it is in the Southern *Hemiſphere*, the *Latitude* of the *Star* is South.

A Table of 20 of the Principal ſtarrs in the firſt Quadrant of Right Aſcenſion

Names of the ſtarrs	*Mag*	*R. A*	*Declin:*
		° . ′ . ″	° . ′ . ″
The Phœnix's head	2	2 . 28	44 . 4 ½S
Caſsiopeia's breaſt	3	5 . 36	54 . 47 N
Southern in the Whales Tayle	2	6 . 49	19 . 47 S
Pole Star	2	8 . 3	87 . 35 N
Andromeda's Girdle	2	12 . 53	33 . 56½ n
Laſt in Eridanus Achernar	1	21 . 15	58 . 55 s
Andromeda's foot	2	26 . 1	40 . 45½ n
*Bright * of Aries*	2	27 . 17	21 . 55½ n
Whales Iaw	2	41 . 25	2 . 49 n
Meduſa's head	3	41 . 51	39 . 40 n
Right ſide of Perſeus	2	45 . 25	48 . 35 n
Brighteſt of the Pleiades	3	52 . 4½	23 . 4½ n
Bulls eye Aldebaran	1	64 . 22	15 . 49 n
Capella	1	73 . 11½	45 . 37½ n
Orions left foot Rigel	1	74 48	8 . 36½ s
Bulls north horn	2	76 . 28	28 . 21½ n
Orions left ſhoulder	2	76 . 58	6 . 1 n
Firſt in Orions Belt	2	78 . 56	0 . 35 s
Aurigas right ſhoulder	2	84 . 1½	44 . 49 n
Orions right ſhoulder	1	84 . 27	7 . 18 n

The Right Aſcenſions
of the Principal
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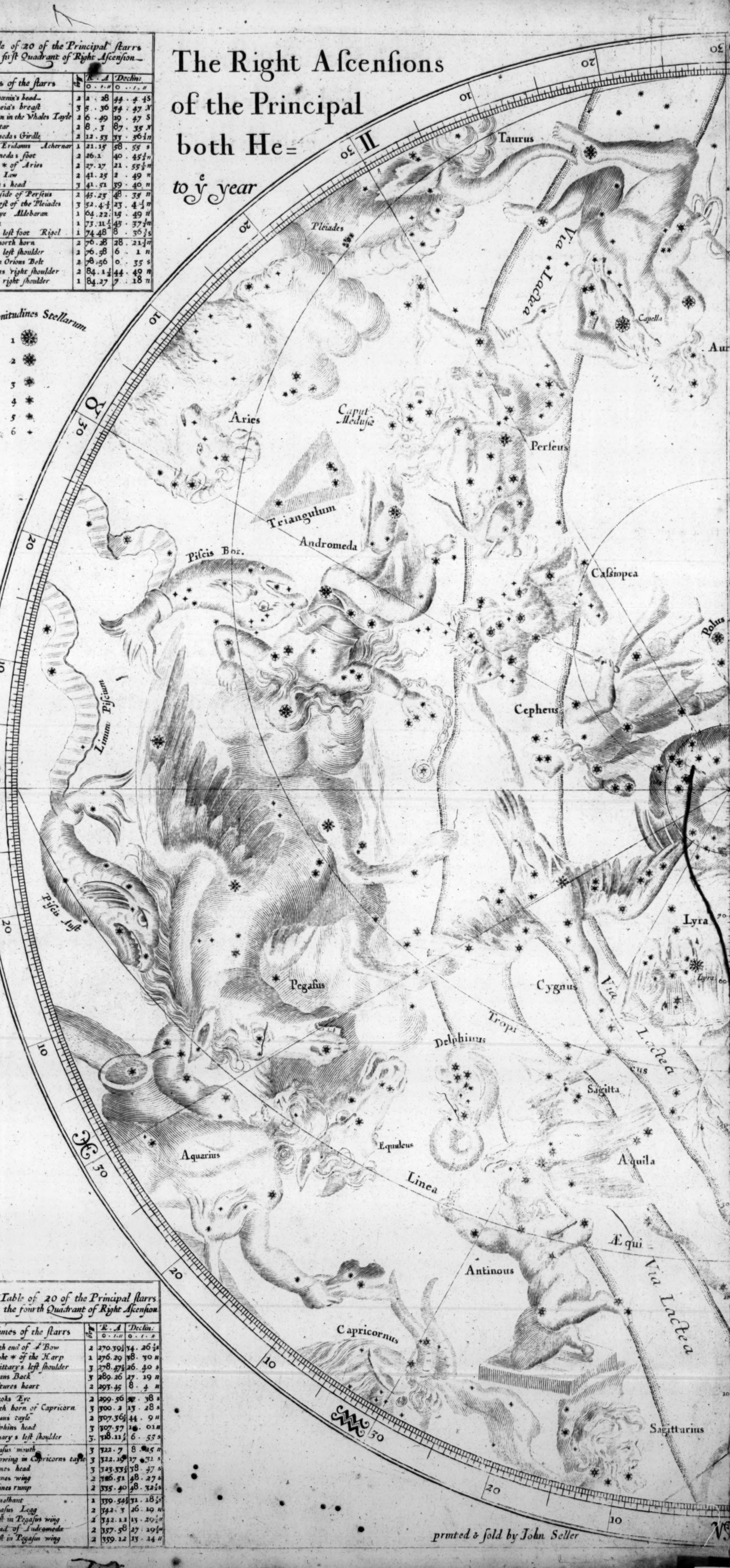
to yͤ year



A Table of 20 of the Principal ſtarrs in the fourth Quadrant of Right Aſcenſion

Names of the ſtarrs	*Mag*	*R. A*	*Declin:*
		° . ′ . ″	° . ′ . ″
South end of ♐ Bow	2	270 . 39½	34 . 26½ s
*Bright * of the Harp*	1	276 . 29	38 . 30 n
Sagittary's left ſhoulder	3	278 . 47½	26 . 40 s
Swans Back	3	289 . 26	27 . 19 n
Vultures heart	2	293 . 45	8 . 4 n
Peacoks Eye	2	299 . 56	[illegible] . 38 s
North horn of Capricorn	3	300 . 2	13 . 28 s
Swans tayle	2	307 . 36½	44 . 9 n
Dolphins head	3	307 . 57	[illegible] . 01 n
Aquary's left ſhoulder	3	318 . 11½	6 . 53 s
Pegaſus mouth	3	322 . 7	8 . 25 n
Following in Capricorns tayle	3	322 . 19	17 . 31 s
Cranes head	3	323 . 33½	38 . 47 s
Cranes wing	2	[illegible] . 51	48 . 27 s
Cranes rump	2	335 . 40	48 . 32½ s
Fomalhaut	1	339 . 54½	31 . 18½ s
Pegaſus Legg	2	342 . 3	26 . 19 n
Firſt in Pegaſus wing	2	342 . 11	13 . 29½ n
Head of Andromeda	2	357 . 58	27 . 19½ n
Laſt in Pegaſus wing	2	359 . 12	13 . 24 n

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and Declinations
Fixed Starrs in
miſphears
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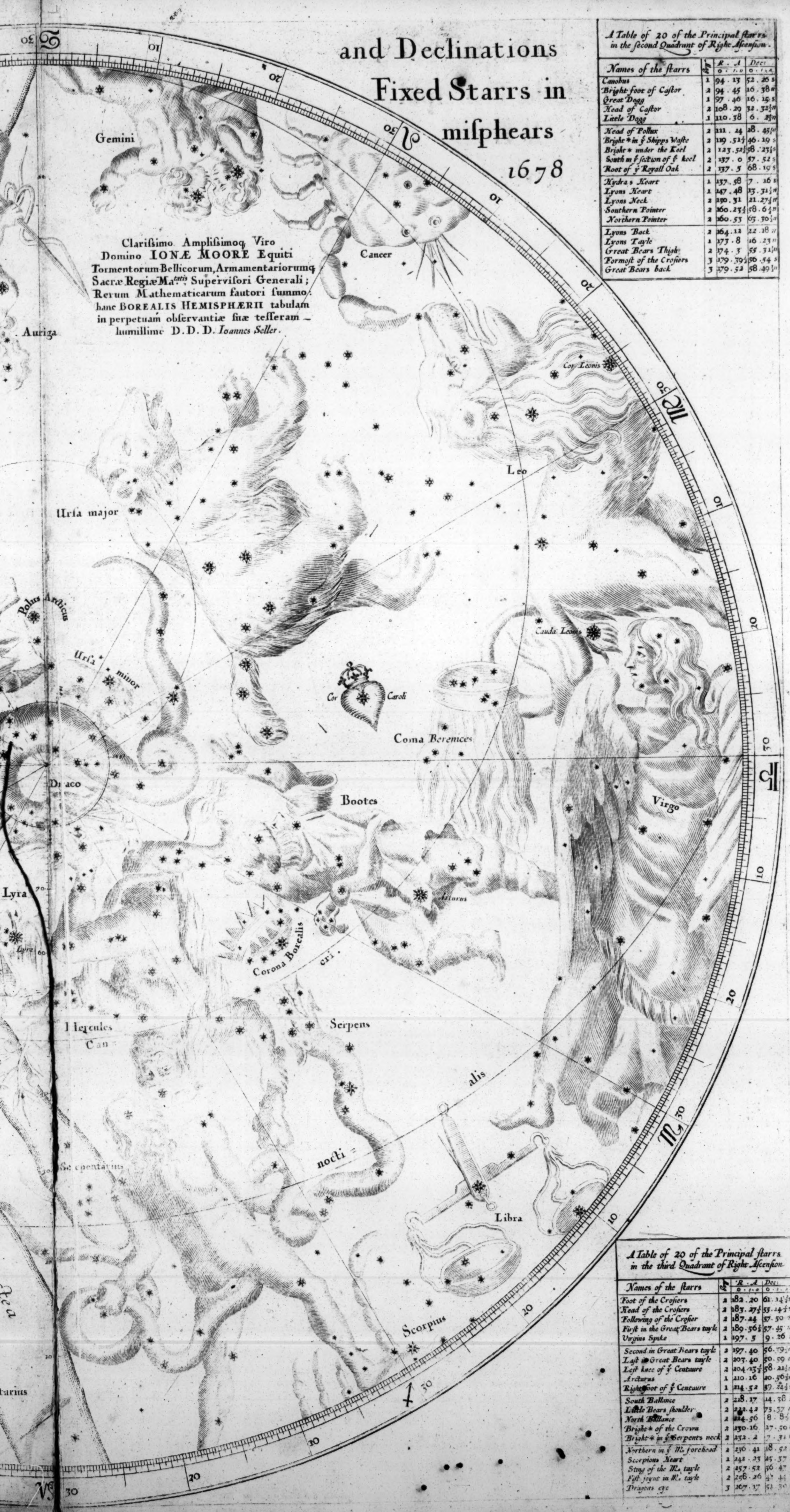


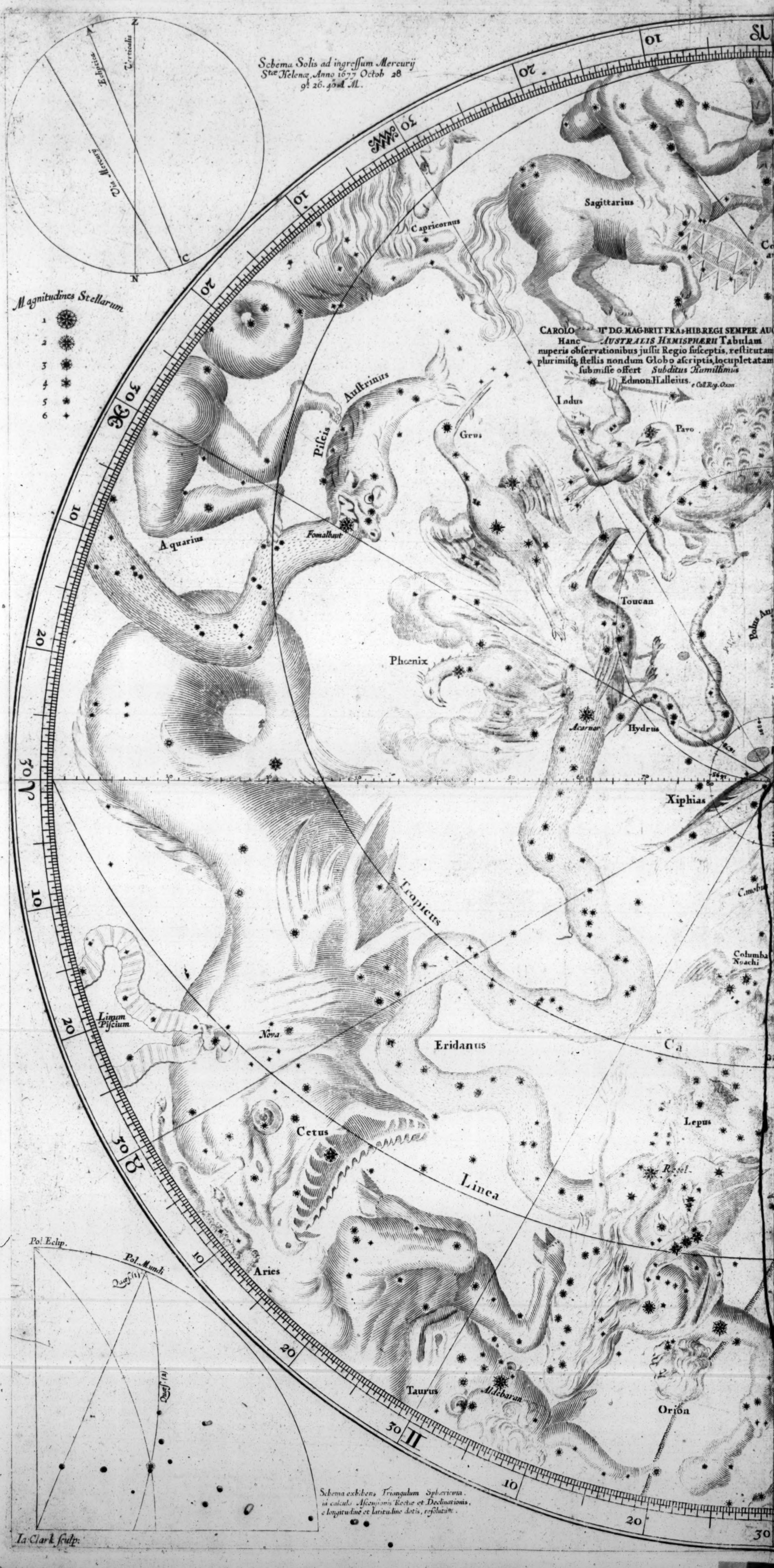
Clariſsimo Ampliſsimoq; Viro
Domino IONÆ MOORE Equiti
Tormentorum Bellicorum, Armamentariorumq;
Sacræ Regiæ Ma^tatis^ Superviſori Generali;
Rerum Mathematicarum fautori ſummo:
hanc BOREALIS HEMISPHÆRII tabulam
in perpetuam obſervantiæ ſuæ teſſeram
humillime D.D.D. *Ioannes Seller*.

A Table of 20 of the Principal ſtarrs in the ſecond Quadrant of Right Aſcenſion.

Names of the ſtarrs	Magn	R . A	Dec:
		° . ' . "	° . ' . "
Canobus	1	94 . 13	52 . 26 s
Bright foot of Caſtor	2	94 . 45	16 . 38 n
Great Dogg	1	97 . 46	16 . 15 s
Head of Caſtor	2	108 . 29	32 . 32½ n
Little Dogg	1	110 . 38	6 . 25 n
Head of Pollux	2	111 . 24	28 . 45½ n
Bright * in ẏe Shipps Waſte	2	119 . 51½	46 . 19 s
Bright * under the Keel	2	123 . 52½	58 . 23½ s
South in ẏe ſection of ẏe keel	2	137 . 0	57 . 52 s
Root of ẏe Royall Oak	2	137 . 5	68 . 19 s
Hydras Heart	1	137 . 58	7 . 16 s
Lyons Heart	1	147 . 48	13 . 31½ n
Lyons Neck	2	150 . 31	21 . 27½ n
Southern Pointer	2	160 . 23½	58 . 6½ n
Northern Pointer	2	160 . 53	63 . 30½ n
Lyons Back	2	164 . 12	22 . 18 n
Lyons Tayle	1	173 . 8	16 . 23 n
Great Bears Thigh	2	174 . 3	55 . 31½ n
Formoſt of the Croſiers	3	179 . 39½	56 . 54 s
Great Bears back	3	179 . 52	58 . 49½ n

A Table of 20 of the Principal ſtarrs in the third Quadrant of Right Aſcenſion

Names of the ſtarrs	Magn	R . A	Dec:
		° . ' . "	° . ' . "
Foot of the Croſiers	2	182 . 20	61 . 14½ s
Head of the Croſiers	2	183 . 27½	55 . 14½ s
Following of the Croſier	2	187 . 24	57 . 50 s
Firſt in the Great Bears tayle	2	189 . 56½	57 . 45 n
Virgins Spike	1	197 . 5	9 . 26 s
Second in Great Bears tayle	2	197 . 40	56 . 39½ n
Laſt in Great Bears tayle	2	203 . 40	50 . 59 n
Left knee of ẏe Centaure	2	204 . 13½	58 . 21½ s
Arcturus	1	210 . 16	20 . 56½ n
Right foot of ẏe Centaure	1	214 . 52	59 . 24½ s
South Ballance	2	218 . 17	14 . 38 s
Little Bears ſhoulder	2	222 . 42	75 . 37 n
North Ballance	2	224 . 56	8 . 8½
Bright * of the Crown	2	230 . 16	27 . 50 n
Bright * in ẏe Serpents neck	2	232 . 2	7 . 31 n
Northern in ẏe ♏ forehead	2	236 . 41	18 . 52 s
Scorpions Heart	1	242 . 23	25 . 37 s
Sting of the ♏ tayle	2	257 . 52	36 . 47 s
Firſt joynt in ♏ tayle	2	258 . 26	41 . 44
Dragons eye	3	267 . 17	51 . 30



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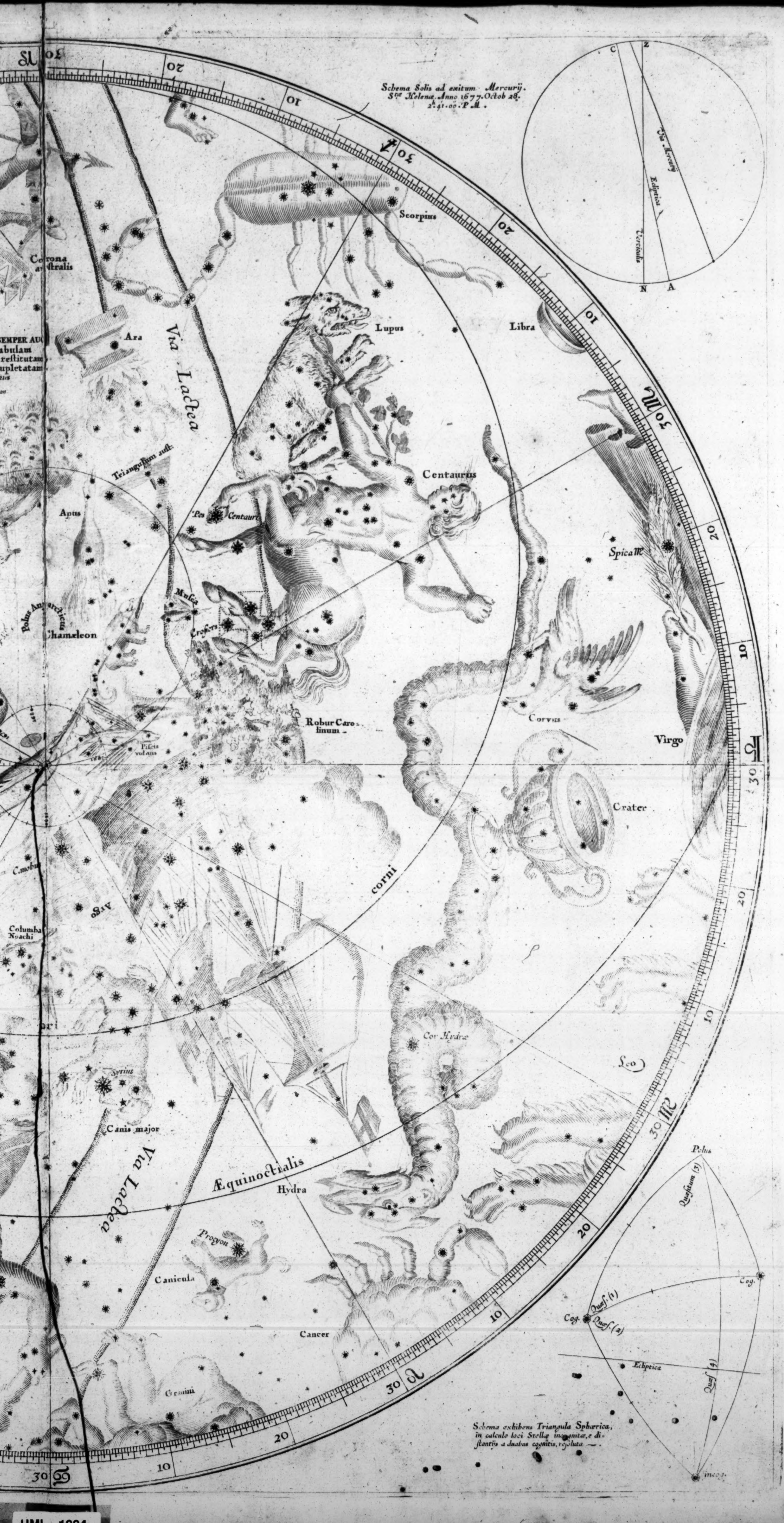
Hanc AUSTRALIS HEMISPHÆRII Tabulam
nuperis obſervationibus juſſu Regio ſuſceptis, reſtitutam
plurimiſq; ſtellis nondum Globo aſcriptis, locupletatam
ſubmiſſe offert Subditus Humillimus
Edmon. Halleius. e Coll. Reg. Oxon

Schema exhibens Triangulum Sphæricum,
in calculo Aſcenſionis Rectæ et Declinationis,
e longitudine et latitudine datis, reſolutum.



Schema Solis ad exitum Mercurij.
Sᵗᵃᵉ Helenæ. Anno 1677. Octob 28.
2ʰ. 41′. 00″. P. M.

Schema exhibens Triangula Sphærica,
in calculo loci Stellæ incognitæ, e diſtantijs a duabus cognitis, reſoluta —.

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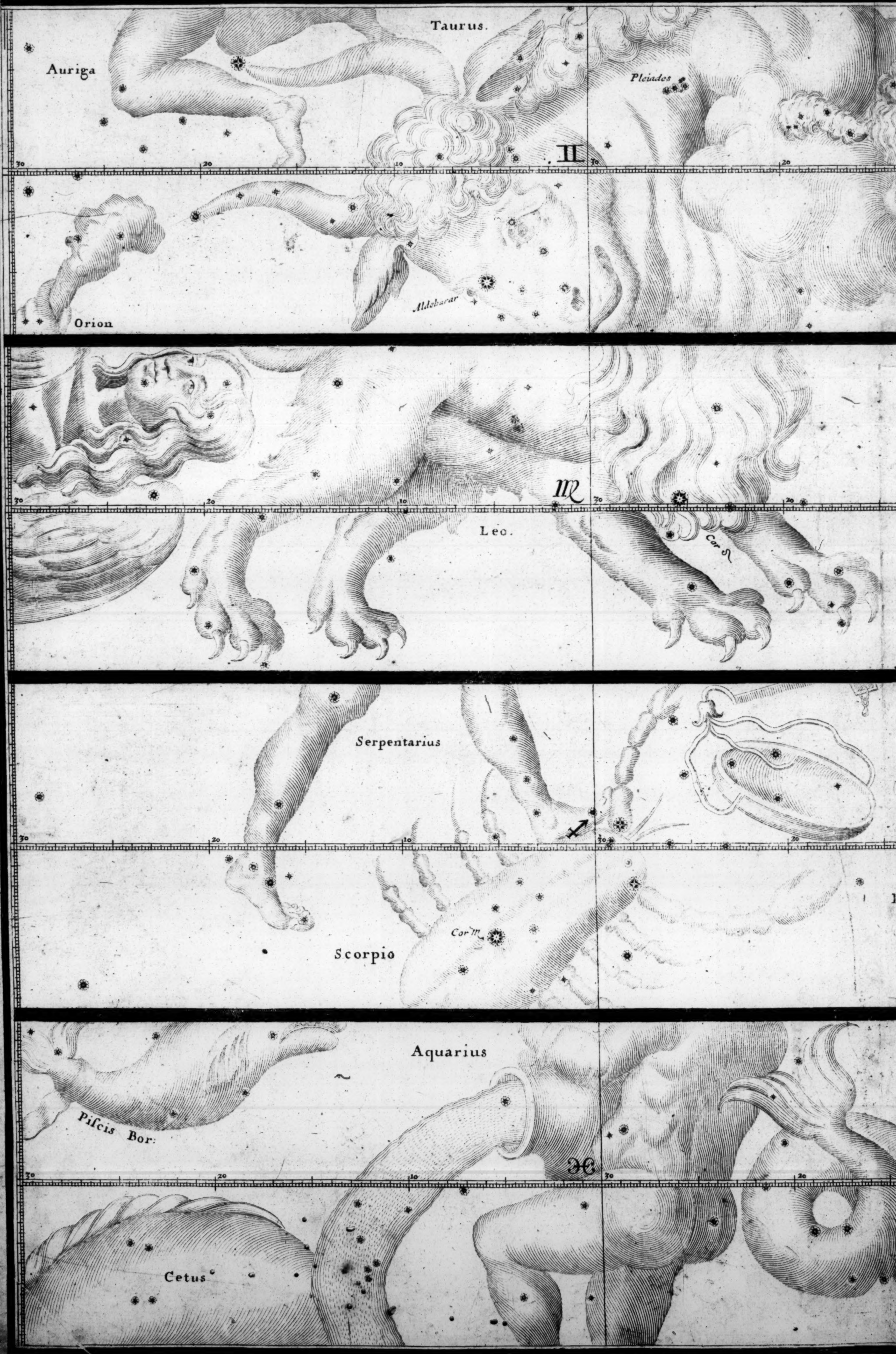
ZODIACUS STELLATUS CUJUS LIM
VISIBILES VIÆ COMPREHENDUNTU



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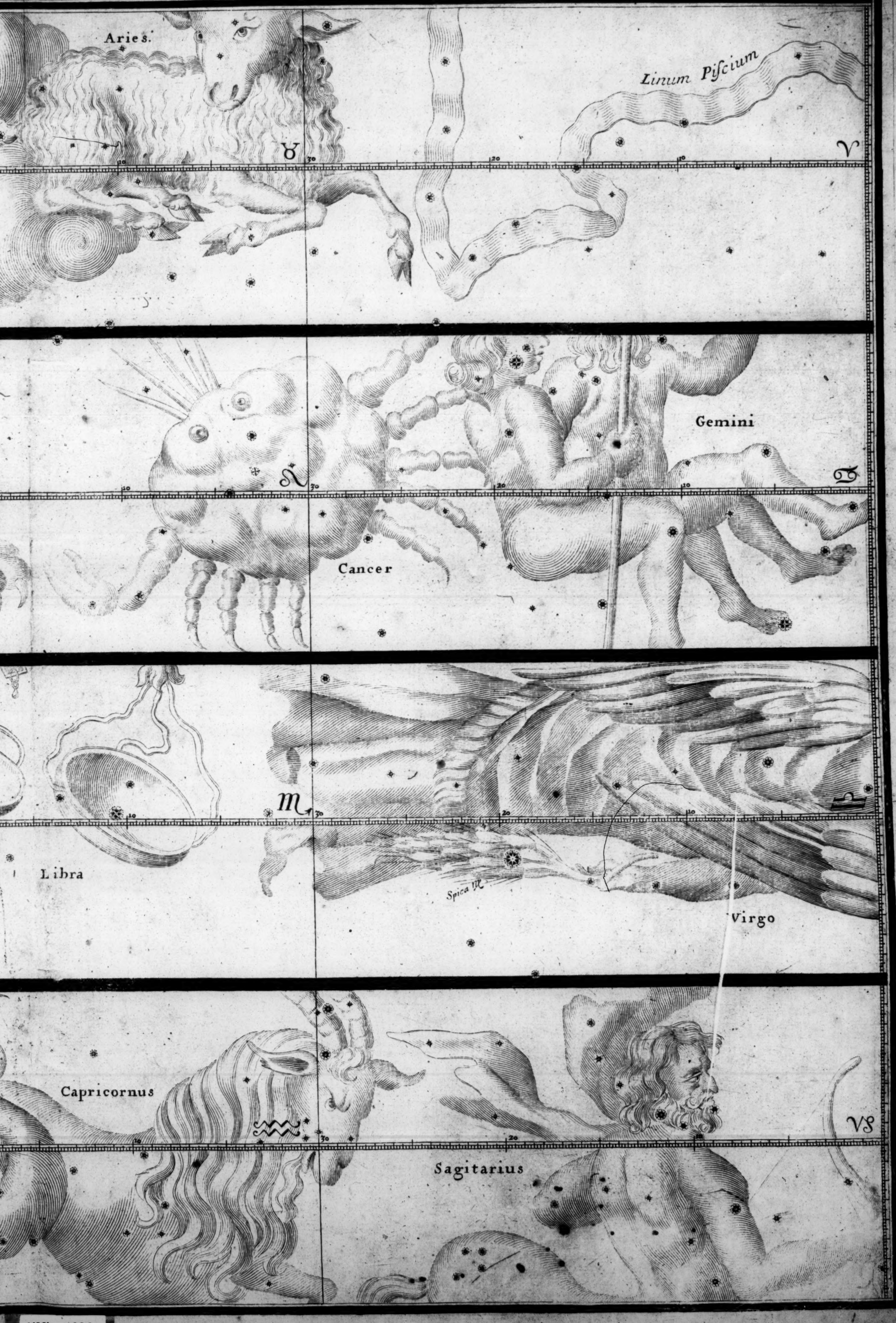

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